TRANSPORTATION RESEARCH

List of Contents and Author Index

Volume 21B, 1987

PERGAMON PRESS

NEW YORK • OXFORD • BEIJING • FRANKFURT
SAO PAULO • SYDNEY • TOKYO • TORONTO

Transportation Research

an international journal **Part B: Methodological**

Editor-in-Chief

FRANK A. HAIGHT
Institute of Transportation Studies, University of California, Irvine, CA 92717, U.S.A.

Associate Editors

ALAN G. WILSON
School of Geography, University of Leeds, Leeds LS2 9JT, United Kingdom

GEORGE H. WEISS
National Institutes of Health, Bethesda, MD 20014, U.S.A.

CARLOS F. DAGANZO
Department of Civil Engineering, University of California, Berkeley, CA 94720, U.S.A.

MARC J. I. GAUDRY
Department de sciences économiques et Centre de recherche sur les transports, Université de Montréal, C.P. 6128—Succursale "A", Montréal, Canada H3C 3J7

FRANK S. KOPPELMAN
Department of Civil Engineering and The Transportation Center
Northwestern University, Evanston IL 60201 U.S.A.

Short Notes and Research Communications Editor: H. C. W. L. WILLIAMS
Department of Town Planning, University of Wales, Institute of Science and Technology, P.O. Box 68, Cardiff CF1 3XA, United Kingdom

Editorial Advisory Board

RICHARD E. ALLSOP, London, U.K.
MARK S. DASKIN, Evanston, IL, U.S.A.
ANDREW F. DAUGHETY, Iowa City, IA, U.S.A.
SVEN ERLANDER, Linköping, Sweden
MICHAEL FLORIAN, Montréal, Canada
TERRY L. FRIESZ, Philadelphia, PA, U.S.A.
NATHAN H. GARTNER, Lowell, MA, U.S.A.
PATRICK T. HARKER, Philadelphia, PA, U.S.A.
DONALD W. HEARN, Gainesville, FL, U.S.A.
CHRIS HENDRICKSON, Pittsburgh, PA, U.S.A.
BENJAMIN G. HEYDECKER, London, U.K.
JOEL HOROWITZ, Iowa City, IA, U.S.A.
LARRY J. LEBLANC, Nashville, TN, U.S.A.
JUDITH S. LIEBMAN, Urbana, IL, U.S.A.
FENG-BOR LIN, Potsdam, NY, U.S.A.
HANI S. MAHMASSANI, Austin, TX, U.S.A.
FRED L. MANNERING, Seattle, WA, U.S.A.
HIDEO NAKAMURA, Tokyo, Japan
KATSUHISA OHNO, Kyoto, Japan
WARREN B. POWELL, Princeton, NJ, U.S.A.
YOSEF SHEFFI, Cambridge, MA, U.S.A.
V. V. SILYANOV, Moscow, U.S.S.R.
M. J. SMITH, York, U.K.
TONY E. SMITH, Philadelphia, PA, U.S.A.
HELMAN I. STERN, Beersheva, Israel
ROGER L. TOBIN, Argonne, IL, U.S.A.
KENNETH TRAIN, Berkeley, CA, U.S.A.
MARK A. TURNQUIST, Ithaca, NY, U.S.A.
DIRCK VAN VLIET, Leeds, U.K.
S. C. WIRASINGHE, Calgary, Canada
H. NATHAN YAGODA, Hackensack, NJ, U.S.A.

Publishing, Subscription, and Advertising Offices: Pergamon Journals, Inc., Fairview Park, Elmsford, NY 10523, U.S.A. and Pergamon Journals, Ltd., Headington Hill Hall, Oxford OX3 0BW, England. Published Bimonthly

Published Bi-Monthly. Annual institutional subscription rate (1988): DM530.00; *Two-year institutional subscription rate* (1988/89): DM1007.00. *Personal subscription rate* for those whose library subscribes at the regular rate (1988): DM157.00. Prices are subject to change without notice. Notify 8 weeks in advance of address change with a copy of the subscription mailing label. *Microform subscriptions*: Information available upon request.

Copyright © 1987 Pergamon Journals Ltd.

It is a condition of publication that manuscripts submitted to this journal have not been published and will not be simultaneously submitted or published elsewhere. By submitting a manuscript, the authors agree that the copyright for their article is transferred to the publisher if and when the article is accepted for publication. The copyright covers the exclusive rights to reproduce and distribute the article, including reprints, photographic reproductions, microform or any other reproductions of similar nature and translations. No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, electrostatic, magnetic tape, mechanical, photocopying, recording or otherwise, without permission in writing from the copyright holder.

PHOTOCOPYING INFORMATION FOR USERS IN THE U.S.A.

The Item-Fee Code for this publication indicates that authorization to photocopy items for internal or personal use is granted by the copyright holder for libraries and other users registered with the Copyright Clearance Center (CCC) Transactional Reporting Service provided the stated fee for copying, beyond that permitted by Section 107 or 108 of the United States Copyright Law, is paid. The appropriate remittance of $3.00 per copy per article is paid directly to the Copyright Clearance Center Inc., 27 Congress Street, Salem, MA 01970.

PERMISSION FOR OTHER USE

The copyright owner's consent does not extend to copying for general distribution, for promotion, for creating new works, or for resale. Specific written permission must be obtained from the publisher for copying. Please contact the Subsidiary Rights Manager, Publishing Services Dept. at either Pergamon Journals Ltd. or Pergamon Journals Inc.

The Item-Fee Code for this publication is: 0191-2615/87 $3.00 + .00

Cover design by Edward Ruscha

PERGAMON PRESS
HEADINGTON HILL HALL, OXFORD OX3 0BW, ENGLAND
MAXWELL HOUSE, FAIRVIEW PARK, ELMSFORD, NY 10523, U.S.A.

LIST OF CONTENTS

Vol. 21B, No. 1, February 1987

Carlos F. Daganzo	1	Dynamic blocking for railyards: Part I. Homogeneous traffic
Carlos F. Daganzo	29	Dynamic blocking for railyards: Part II. Heterogeneous traffic
David C. Waters	41	Use of ensemble averaging and differential comparison to detect retail sales increases by the Bay Area Rapid Transit System
B. Ashtakala	59	Generalized power model for trip distribution
Malachy Carey	69	Network equilibrium: Optimization formulations with both quantities and prices as variables
Benjamin Heydecker	79	Uncertainty and variability in traffic signal calculations
Dirck Van Vliet	87	The Frank-Wolfe algorithm for equilibrium traffic assignment viewed as a variational inequality
	I	Forthcoming Papers

Vol. 21B, No. 2, April 1987

Joffre Swait and **Moshe Ben-Akiva**	91	Incorporating random constraints in discrete models of choice set generation
Joffre Swait and **Moshe Ben-Akiva**	103	Empirical test of a constrained choice discrete model: Mode choice in São Paulo, Brazil
M. Cremer and **H. Keller**	117	A new class of dynamic methods for the identification of origin-destination flows
Poulicos Prastacos and **Michael Romanos**	133	A multiregional optimization model for allocating transportation investments
Nancy L. Nihan and **Gary A. Davis**	149	Recursive estimation of origin-destination matrices from input/output counts
		Short Notes and Research Communications
Sergio R. Jara-Díaz and **Marcelo Farah**	165	Transport demand and users' benefits with fixed income: The goods/leisure trade off revisited
Esko Niskanen	171	Congestion tolls and consumer welfare
	I	Forthcoming Papers

Vol. 21B, No. 3, June 1987

C. S. Fisk	175	Spatial price equilibrium on congested networks
William C. Jordan	183	Truck backhauling on networks with many terminals
Mark D. Uncles	195	A beta-logistic model of mode choice: Goodness of fit and intertemporal dependence
C. E. M. Pearce	207	A probabilistic model for the behaviour of traffic at a roundabout
Warren B. Powell	217	An operational planning model for the dynamic vehicle allocation problem with uncertain demands
Masao Kuwahara and **Edward C. Sullivan**	233	Estimating origin–destination matrices from roadside survey data
	249	Erratum
	I	Forthcoming papers

Vol. 21B, No. 4, August 1987

Andrew Daly	251	Estimating "tree" logit models
Said M. Easa	269	Approximate queueing models for analyzing harbor terminal operations
Randolph W. Hall	287	Direct versus terminal freight routing on a network with concave costs
Bruce N. Janson and **Carlos Zozaya-Gorostiza**	299	The problem of cyclic flows in traffic assignment
		Short Notes and Research Communications
Jeffrey C. Dauler and **Henry L. W. Nuttle**	311	Addendum to "A comparison of heuristics for a school bus scheduling problem"
Alan J. Horowitz and **Anand R. Pithavadian**	317	Toward a data structure for computer-aided design of transportation networks
Jerry R. Weaver and **Richard L. Church**	323	The formal and computational relationship of the supporting median problem to the *p*-median problem
Harold E. Dyck	331	The role of expectations on automobile demand
	I	Forthcoming papers

Vol. 21B, No. 5, October 1987

Timothy D. Hau	339	Using a Hicksian approach to cost–benefit analysis in discrete choice: An empirical analysis of a transportation corridor simulation model
I. Blechman	359	Regularities and a descriptive algorithm of the trip to work distribution
Heinz Spiess	395	A maximum likelihood model for estimating origin–destination matrices
Marcel Boyer and **Georges Dionne**	413	The economics of road safety
	I	Forthcoming papers

Vol. 21B, No. 6, December 1987

Glen D'Este	433	Trip assignment to radial major roads
Marcel G. Dagenais, Marc J. I. Gaudry and **Tran Cong Liem**	443	Urban travel demand: The impact of Box–Cox transformations with nonspherical residual errors
Obrad Babić	479	Optimization of refuelling truck fleets at an airport
Javier Gutiérrez Puebla	489	Spatial structures of network flows: A graph theoretical approach
	I	Forthcoming Papers
	V	Volume 21 Contents and Author Index

AUTHOR INDEX

Ashtakala, B., 59

Babić, O., 479
Ben-Akiva, M., 91, 103
Blechman, I., 359
Boyer, M., 413

Carey, M., 69
Church, R. L., 323
Cremer, M., 117

Daganzo, C. F., 1, 29
Dagenais, M. G., 443
Daly, A., 251
Dauler, J. C., 311
Davis, G. A., 149, 249
D'Este, G., 433
Dionne, G., 413
Dyck, H. E., 331

Easa, S. M., 269

Farah, M., 165
Fisk, C. S., 175

Gaudry, M. J. I., 443
Gutiérrez Puebla, J., 489

Hall, R. W., 287
Hau, T. D., 339
Heydecker, B., 79
Horowitz, A. J., 317

Janson, B. N., 299
Jara-Díaz, S. R., 165
Jordan, W. C., 183

Keller, H., 117
Kuwahara, M., 233

Liem, T. C., 443

Nihan, N. L., 149, 249
Niskanen, E., 171
Nuttle, H. L. W., 311

Pearce, C. E. M., 207
Pithavadian, A. R., 317
Powell, W. B., 217
Prastacos, P., 133

Romanos, M., 133

Spiess, H., 395
Sullivan, E. C., 233
Swait, J., 91, 103

Uncles, M. D., 195

Van Vliet, D., 87

Waters, D. C., 41
Weaver, J. R., 323

Zozaya-Gorostiza, C., 299